Amendments to the Claims

This listing of claims replaces all previous listings of claims.

1. (Currently amended) A method of diagnosing Crohn's disease in a subject, the method comprising

providing a test sample from a subject with digestive symptoms of Crohn's disease; ~~and~~

~~identifying a specific anti-glycan antibody in said sample, wherein said specific anti-glycan antibody is~~

detecting a level of an IgA anti-GlcNAc (β 1-4) GlcNAc (β) antibody (ACCA) in said sample by binding to a carbohydrate reagent comprising an isolated GlcNAc (β 1-4) GlcNAc (β) glycan; and

~~wherein the identification of elevated levels~~ diagnosing Crohn's Disease by detection of an elevated level of said antibody in said test sample relative to a control sample ~~indicates the subject has Crohn's disease~~.

2. (Previously presented) The method of claim 1, wherein said method further comprises comparing levels of said specific anti-glycan antibody in said test sample to levels of said specific anti-glycan antibody in a control sample, wherein said control sample is selected from the group consisting of one or more individuals known to have or not to have a gastrointestinal disorder other than Crohn's disease.

3. (Original) The method of claim 2, wherein said control sample is from one or more individuals with a gastrointestinal disorder that is irritable bowel syndrome or ulcerative colitis.

4. (Original) The method of claim 2, wherein said control sample is from one or more individuals that do not have a gastrointestinal disorder.

5. (Currently amended) The method of claim 1, wherein said method further comprises ~~identifying~~ detecting a level of at least one of an anti-Glc (β 1-3) Glc (β) antibody and an anti-polysaccharide β-D (1-3) Glucan antibody in said sample.

6. (Currently amended) The method of claim 1, wherein said method further comprises ~~identifying~~ detecting a level of an anti-Glc (β 1-3) Glc (β) antibody and an anti-polysaccharide β-D (1-3) Glucan antibody in said sample.

7. (Canceled)

8. (Currently amended) The method of claim 1, further[[ ]] comprising ~~determining whether~~ detecting in said test sample ~~has~~ a level of an anti-[[ ]]Mannan (ASCA) antibody, wherein the subject is assessed as having Crohn's disease if said anti-GlcNAc (β 1-4) GlcNAc (β) antibody (ACCA) and said anti-ASCA antibody [[is]] levels are elevated ~~present~~ in said sample.

9. (Currently amended) The method of claim 1, further comprising determining whether said test sample has anti-neutrophil cytoplasmic antibodies (ANCA), wherein the subject is assessed as [[not]] having Crohn's Disease if said anti-neutrophil cytoplasmic antibodies (ANCA) [[ ]]are ~~present~~ absent in said sample.

10. (Currently amended) The method of claim 8, further comprising determining whether said test sample has an anti-neutrophil cytoplasmic antibodies (ANCA), wherein the subject is assessed as [[not]] having Crohn's Disease if said anti-neutrophil cytoplasmic antibodies (ANCA) [[ ]]are ~~present~~ absent in said sample.

11. (Currently amended) The method of claim 1, wherein said method comprises ~~identifying~~ detecting a level of one, two, or three of anti-Man (α 1-3) Man (α)[[ ]] antibody, anti-Man (α 1-3)[Man (α 1-6)] Man (α) antibody, anti-Man (α 1-2) Man (α), anti-Man (α 1-6) Man (α) or an anti-Mannan (ASCA) antibody in said sample.

12. (Original) The method of claim 1, wherein said test sample is a biological fluid.

13. (Original) The method of claim 12, wherein said biological fluid is whole blood, serum, plasma, urine, or saliva.

14. (Previously presented) The method of claim 12, wherein said biological fluid is serum.

15. (Currently amended) The method of claim 5, further comprising determining an isotype of said antibody or antibodies.

16. (Canceled)

17. (Previously presented) The method of claim 15, wherein said antibody is an IgA isotype antibody.

18. (Previously presented) The method of claim 15, wherein said antibody is an IgG isotype antibody.

19. (Currently amended) The method of claim 18, wherein said method further comprises detecting a level of ~~IgG antibody is~~ an anti-Glc (β) IgG antibody, an anti-Glc (β 1-3) Glc (β) IgG antibody, an anti-Glc (β 1-4) Glc (β) IgG antibody, an anti-GlcNAc (β) 6-sulfate IgG antibody, or an anti-Xylan IgG antibody[[ ]] in said sample.

20. (Previously presented) The method of claim 5, wherein said specific anti-glycan antibody is identified with a fluorescent antibody.

21. (Previously presented) The method of claim 5, wherein said specific anti-glycan antibody is identified with an enzyme-linked immunoabsorbent assay (ELISA).

22. (Currently amended) A method of diagnosing Crohn's disease in a subject, the method comprising

providing a test sample from a subject with digestive symptoms of Crohn's disease; ~~and~~

~~identifying a specific anti-glycan antibody in said test sample, wherein said specific anti-glycan antibody is~~ detecting a level of an anti-Glc (β 1-3) Glc (β) antibody (ALCA) in said

sample by binding to a carbohydrate reagent comprising an isolated Glc (β 1-3) Glc (β) glycan; and

~~wherein the identification of elevated levels~~ diagnosing Crohn's Disease by detection of an elevated level of said antibody in said test sample relative to a control sample ~~indicates the subject has Crohn's disease~~.

23. (Currently amended) The method of claim 22, wherein said method comprises ~~identifying~~ detecting a level of an IgG anti-Glc (β 1-3) Glc (β) antibody in said sample.

24. (Currently amended) The method of claim 23, wherein said method further comprises ~~identifying~~ detecting a level of an IgG anti-Man (α 1-3) Man (α) antibody in said sample.

25. (Currently amended) The method of claim 22, wherein said method comprises ~~identifying~~ detecting a level of an IgG Glc (β 1-3) Glc (β) [[ ]]antibody and an IgG anti-Man (α 1-3) Man (α) antibody in said sample.

26. (Currently amended) The method of claim 22, wherein said method further comprises ~~determining whether said sample has~~ detecting a level of an IgG anti-[[ ]]Mannan or an IgA anti-Mannan antibody in said sample, wherein said subject is assessed [[h]]as having Crohn's Disease if said anti-Glc (β 1-3) Glc (β) antibody (ALCA), said IgG anti- Mannan, or IgA [[ ]]anti-Mannan antibody is elevated ~~present~~ in said sample.

27. (Currently amended) The method of claim 26, wherein said method comprises ~~determining whether said sample has~~ detecting a level of an IgG anti-[[ ]]Mannan antibody in said sample.

28. (Currently amended) The method of claim 26, wherein said method [[ ]]comprises ~~determining whether said sample has~~ detecting a level of an IgA anti-Mannan antibody in said sample.

29. (Previously presented) The method of claim 26, wherein said method further comprises determining whether said sample has anti-neutrophil cytoplasmic antibodies (ANCA), wherein said subject is assessed as having Crohn's Disease if said ANCA are absent in said sample.

30. (Currently amended) A method of differentially diagnosing Crohn's disease or inflammatory bowel disease in a subject with digestive symptoms of Crohn's disease or inflammatory bowel disease, the method comprising

providing a test sample from [[a]]the subject; and

detecting a level of an anti-neutrophil cytoplasmic antibody (ANCA) in said sample;

~~identifying~~ detecting a level of ~~a specific antibody~~ an IgG anti-Glc (β 1-3) Glc (β) in said sample by binding to a carbohydrate reagent comprising an isolated Glc (β 1-3) Glc (β) glycan~~,~~ ~~wherein said specific antibody is selected from the group consisting of~~

~~anti-neutrophil cytoplasmic antibody (ANCA) and~~

~~IgG anti-Glc (β 1-3) Glc (β)~~;

the method further comprising identifying a specific ASCA antibody selected from the group consisting of

IgG ASCA and

IgA ASCA,

wherein absence of ANCA and presence of at least one of said IgG anti-Glc (β 1-3) Glc (β), IgG ASCA, and IgA ASCA antibodies in said test sample indicates the subject has Crohn's disease, and

wherein the subject is assessed as having inflammatory bowel disease if ANCA is present and at least one of said IgG anti-Glc (β 1-3) Glc (β), IgG ASCA, and IgA ASCA antibodies are present in said test sample.

[[.]]

Claims 31-42 (Canceled)

43. (Previously presented) The method of claim 22, wherein said method further comprises comparing levels of said at least one specific anti-glycan antibody in said test sample to levels of said at least one specific anti-glycan antibody in a control sample, wherein said control sample is selected from the group consisting of one or more individuals known to have or not to have a gastrointestinal disorder other than Crohn's disease.

44. (Previously presented) The method of claim 43, wherein said control sample is from one or more individuals with a gastrointestinal disorder that is irritable bowel syndrome or ulcerative colitis.

45. (Previously presented) The method of claim 43, wherein said control sample is from one or more individuals that do not have a gastrointestinal disorder.

46. (Currently amended) The method of claim 22, wherein said method further comprises ~~identifying~~ detecting a level of at least one of an anti-GlcNAc (β 1-4) GlcNAc (β) antibody and an anti-polysaccharide β-D (1-3) Glucan antibody in said sample.

47. (Currently amended) The method of claim 22, wherein said method further comprises ~~identifying~~ detecting a level of an anti-GlcNAc (β 1-4) GlcNAc (β) antibody and an anti-polysaccharide β-D (1-3) Glucan antibody in said sample.

48. (Currently amended) The method of claim 22, further [[ ]]comprising ~~determining whether said test sample has~~ detecting a level of anti- Mannan[[ ]] (ASCA) antibody in said sample, wherein the subject is assessed as having Crohn's disease if said anti-Glc (β 1-3) Glc (β) antibody (ALCA) or said anti-ASCA antibody is elevated ~~present~~ in said sample.

49. (Currently amended) The method of claim 22, further comprising determining whether said test sample has anti-neutrophil cytoplasmic antibodies (ANCA), wherein the subject is assessed as [[not]] having Crohn's Disease if said anti-neutrophil cytoplasmic antibodies (ANCA) [[ ]]are ~~present~~ absent in said sample.

50. (Currently amended) The method of claim 48, further comprising determining whether said test sample has an anti-neutrophil cytoplasmic antibodies (ANCA), wherein the

subject is assessed as [[[not]] having Crohn's Disease if said anti-neutrophil cytoplasmic antibodies (ANCA) [[ ]]are ~~present~~ absent in said sample.

51. (Previously presented) The method of claim 22, wherein said test sample is a biological fluid.

52. (Previously presented) The method of claim 51, wherein said biological fluid is whole blood, serum, plasma, urine, or saliva.

53. (Previously presented) The method of claim 51, wherein said biological fluid is serum.

54. (Currently amended) The method of claim 46, further comprising determining an isotype of said antibody or antibodies.

55. (Canceled)

56. (Previously presented) The method of claim 54, wherein said antibody is an IgA isotype antibody.

57. (Previously presented) The method of claim 54, wherein said antibody is an IgG isotype antibody.

58. (Currently amended) The method of claim 57, wherein said method further comprises detecting a level of ~~IgG antibody is~~ an anti-Glc (β) IgG antibody, an anti-Glc (β 1-3) Glc (β) IgG antibody, an anti-Glc (β 1-4) Glc (β) IgG antibody, an anti-GlcNAc (β) 6-sulfate IgG antibody, or an anti-Xylan IgG antibody[[ ]] in said sample.

59. (Previously presented) The method of claim 46, wherein said specific anti-glycan antibody is identified with a fluorescent antibody.

60. (Previously presented) The method of claim 46, wherein said specific anti-glycan antibody is identified with an enzyme-linked immunoabsorbent assay (ELISA).

61. (Currently amended) The method of claim 22, wherein said method comprises ~~identifying~~ detecting a level of said anti-[[ ]]Glc (β 1-3) Glc (β) antibody, and one, two, or three of anti-Man (α 1-3) Man (α) antibody, anti-Man (α 1-3)[Man (α 1-6)] Man (α) antibody, anti-Man (α 1-2) Man (α),anti-Man (α 1-6) Man (α) or an anti- Mannan (ASCA) antibody in said sample.

62. (Previously presented) The method of claim 1, further comprising determining an isotype of said antibody, wherein said antibody is an IgA isotype antibody.

63. (Previously presented) The method of claim 22, further comprising determining an isotype of said antibody, wherein said antibody is an IgA isotype antibody.

64. (New) The method of claim 1, further comprising detecting a level of an anti-mannan antibody (ASCA) in said sample by binding to a carbohydrate reagent comprising an isolated mannan and diagnosing Crohn's Disease by detection of an elevated level of said anti-mannan antibody in said test sample relative to a control sample.

65. (New) The method of claim 1, further comprising detecting a level of an anti-Glc (β 1-3) Glc (B) antibody (ALCA) in said sample by binding to a carbohydrate reagent comprising an isolated Glc (β 1-3) Glc (B) glycan and diagnosing Crohn's Disease by detection of an elevated level of said anti-Glc (β 1-3) Glc (B) antibody in said test sample relative to a control sample.

66. (New) The method of claim 1, further comprising detecting a level of an anti-Man(α 1,3)Man(α) antibody (AMCA) in said sample by binding to a carbohydrate reagent comprising an isolated Man(α 1,3)Man(α) glycan and diagnosing Crohn's Disease by detection of an elevated level of said anti- Man(α 1,3)Man(α) antibody in said test sample relative to a control sample.

67. (New) A method of diagnosing Crohn's disease in a subject, the method comprising providing a test sample from a subject with digestive symptoms of Crohn's disease;

detecting a level of an anti-GlcNAc (β 1-4) GlcNAc (β) antibody (ACCA) in said sample by binding to a GlcNAc (β 1-4) GlcNAc (β) glycan on a solid phase;

detecting a level of an anti-Glc(β 1-3) Glc (β) antibody (ALCA) in said sample by binding to a Glc(β 1-3) Glc (β) glycan on a solid phase;

detecting a level of an anti-mannan antibody (ASCA) in said sample by binding to a mannan glycan on a solid phase; and

detecting a level of an anti-Man(α1,3)Man(α) antibody (AMCA) in said sample by binding to a Man(α1,3)Man(α) glycan on a solid phase;

wherein elevated levels of at least two of said antibodies in said test sample relative to a control sample indicates the subject has Crohn's disease.

68. (New) The method of claim 67, wherein elevated levels of at least three of said antibodies in said test sample relative to a control sample indicates the subject has Crohn's disease.

69. (New) The method of claim 67, wherein said GlcNAc (β 1-4) GlcNAc (β) glycan, said Glc(β 1-3) Glc (β) glycan, said mannan glycan, and said Man(α1,3)Man(α) glycan are attached via a linker to said solid phase.

70. (New) The method of claim 67, wherein said GlcNAc (β 1-4) GlcNAc (β) glycan, said Glc(β 1-3) Glc (β) glycan, said mannan glycan, and said Man(α1,3)Man(α) glycan are covalently attached to said solid phase.